

Serial No.: 10/065,239
Confirmation No.: 9441
Applicant: TISSLER, Arno *et al.*
Atty. Ref.: 00173.0022.EPUS00

REMARKS:

REMARKS REGARDING CLAIMS:

The rejections under 35 U.S.C. §112, second paragraph, have been addressed by current amendment to particularly point out and distinctly claim the subject matter applicants regard as the invention. New claims 40 and 60 find support in paragraph [0095] of the published application. Claims in independent format are presented in response to the Action's indication of allowable subject matter; specifically, new claim 41 includes the limitations of original claims 1 + 4 + 6 and claim 42 includes the limitations of original claims 1 + 4 + 11 + 12. Still further, new claims 43-59 recite previously-presented limitations, and variously (and in some cases, multiply) depend from allowable claims 41 and 42.

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IN RESPONSE TO THE OFFICE ACTION:

REJECTION UNDER 35 U.S.C. § 112:

The Office Action indicates rejection of claims 1 - 21 and 35 - 38 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 35 - 38 have been cancelled and claim 1 has been amended to include limitations of original claim 4, which claim has been cancelled. Depending claims have been amended to correct dependency as needed, and to provide clarification where appropriate to overcome rejection, under 35 U.S.C. §112, second paragraph, for failure to particularly point out and distinctly claim the subject matter applicants regard as the invention. Request is made for reconsideration and withdrawal of the rejection.

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REJECTION UNDER 35 U.S.C. § 102:

The following discussion includes a table providing requirements of amended claims of the present invention and a summary of teachings of cited references as follows:

Comparison of the Present Invention with Teachings of the Cited References

Claims Requirements of the Present Invention	(a) Endo et al (JP 2000-167390 A) (b) Li et al. (EP 582 743)
<p>Amended Claim 1 recites, “ A porous material - - comprising: a carrier with a first porous structure enclosing an oxidation catalyst (OX), consisting essentially of iron (Fe) and silver (Ag), - - said porous material further comprising a carrier with a second porous structure having located therein a reduction catalyst (RED) that in the presence of the reducing agent (HC) is able to selectively catalyze reduction of nitrogen dioxide into nitrogen - .”</p>	<p>Endo et al. (JP 2000-167390 A) teaches a zeolite supported catalyst made up of silver, phosphorus and iron that effectively captures and holds hydrocarbon components of exhaust gases. The reference is silent regarding oxidation of oxides of nitrogen, which are mentioned only twice (see paragraphs [0002] and [0030]) in the description. Also the reference fails to teach a first porous structure and a second porous structure and the reduction of nitrogen dioxide to nitrogen.</p> <p>Li et al. (EP 582 743) clearly teaches ion exchange to provide a preferred cobalt catalytic material supported on a zeolite material. This reference is silent regarding the use of first and second porous structures and views mixed catalyst systems as relatively ineffective when it states, “The activity of the catalyst appears directly related to the cobalt loading level.”</p>
<p>Claim 5 requires that “the first porous structure on an average exhibits smaller entrances for the reducing agent (HC) than the second porous structure.”</p>	<p>Li et al. (EP 582 743) is silent regarding the use of first and second porous structures varying in pore (entrance) size.</p>

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According to the Office Action, "Claims 1 - 3 and 35 - 38 are rejected under 35 U.S.C. §102(b) as being anticipated by JP 2000-167390." Claims 35 - 38 have been cancelled.

The teachings of Endo et al. (JP 2000-167390 A) are limited to provision of "a hydrocarbon adsorbent having a high hydrocarbon adsorbing capacity and high desorption temperature" (see reference abstract). In other words Endo et al., is silent regarding purification of exhaust gases by converting nitrogen oxides to nitrogen. Although the reference mentions prior art removal of oxides of nitrogen (see paragraph [0002]), it fails to cite a particular source of information, and includes nitric oxide (NO) only in a test composition (see paragraph [0030]). Such cursory citation represents evidence that Endo et al does not rise to the level of teaching a key aspect of claim 1 according to the present invention.

In a further statement, the Office Action agrees that JP 2000-167390 only discloses a hydrocarbon adsorbent employing a catalyst composition comprising silver, phosphorus and iron on zeolite, which is considered to meet the first porous structure and the Fe and Ag are considered to meet the oxidation catalyst. Claim 1 has been amended to require a catalyst according to the present invention, "consisting essentially of iron (Fe) and silver (Ag)."¹ Furthermore, this limitation is not adding new matter to the claims; for instance, see now-cancelled claim 36. This limitation along with the fact that Endo et al. does not require the presence of oxygen in the process of hydrocarbon absorption and desorption provides further differentiation of the present invention over the reference.

With regard to the application of *In re Casey* 370 USPQ 235 and *In re Otto*, 312 USPQ 458, applicants include the intended use only as "catalytic conversion of exhaust gases." This intended use is also a goal of Endo et al., but previous discussion shows that this does not mean that "each and every element" claimed by the present invention are found either expressly or inherently described in this single reference. For the reasons presented, Endo et al. (JP 2000-167390 A) fails to anticipate claims of the present invention under 35 U.S.C. §102.

Applicants request reconsideration and withdrawal of the rejection of claims 1 - 3 under 35 U.S.C. §102(b) based on Endo et al. (JP 2000-167390 A).

¹ Attention is respectfully directed to MPEP § 2111.03 where the interpretation of a "consisting essentially of" recitation is instructed.

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Further rejection of claims under 35 U.S.C. §102(b) involves claims 1 - 5, 7 - 11, 13 - 14, 17 - 21, and 35 - 38 as being anticipated by EP 0 582 743 (Li *et al.*). The Examiner also concludes that “each and every element of the claimed invention is taught . . . by EP 0 582 743.” This conclusion overlooks several requirements of these claims of the present invention that Li *et al.* fails to disclose. For example, the reference is silent concerning the use of different porous support materials of differing pore size; i.e., the “smaller entrances” of claim 5 according to the present invention.

Claims 4 and 35 - 38 have been cancelled and claim 1 has been amended to include limitations of original claim 4 and recite the use of a catalytic material “consisting essentially of iron (Fe) and silver (Ag).” In Li *et al.*, iron (Fe) and silver (Ag) are merely mentioned in a “shopping list” of possible elements, but the reference in no way discloses, teaches or suggests these two elements, as essentially exclusive members of the catalytic material. Therefore, the reference does not disclose a catalytic material consisting essentially of iron (Fe) and silver (Ag) as recited by Applicant.

Furthermore, Li *et al.* repeatedly teaches the usefulness of zeolite supports that are ion-exchanged to include cobalt catalytic sites, which catalysts apparently lose their activity when combined with other materials. Evidence of this is provided by the following statement regarding Runs 17 - 21 reported by the reference, which states; “some of the cobalt which was previously ion-exchanged into the ZSM-5 catalyst was exchanged with manganese, copper, nickel, chromium or silver. The activity of the catalyst appears directly related to the cobalt loading level.” Knowledge of Li *et al.* (EP 582 743) leads one to the conclusion that combined catalysts have less activity than single ion catalysts, especially cobalt. This renders unlikely the discovery of the improved activity, according to the present invention using a combination consisting essentially of iron and silver.

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Applicants acknowledge that EP 0 582 743 discloses a catalyst composition useful in the purification of nitrogen oxides in exhaust gas, and that the catalyst composition comprises a zeolite ion-exchanged with a metal such as iron, which is one in a list of seven optional cations. The list does not include silver, but the reference states, "that the metal exchanged zeolite may be impregnated with a metal such as silver." Applicants submit that the activity of catalysts containing silver depends upon the concentration of catalytic cobalt (see above), since the reference states that "[t]he amount of second metal to be exchanged ranges from about 0.01 wt% to about 2 wt% based upon the total weight of the catalyst with the remaining portion of the exchanged metal comprising cobalt."

Li et al. discusses structures of zeolite supports including MOR, MFI, and FER types, suggesting a range of pore sizes from about 5 to 15 angstroms, but fails to teach use of at least two porous structures, recited in claim 5 to be of different pore (entrance) size. Also, the range of pore sizes (3.0 - 4.5 angstroms) for the first porous structure is below the range taught by Li et al.

Regarding combination of metal exchanged and metal impregnated zeolite with an additional catalyst comprising platinum or palladium on ZSM, paragraph [0076] of the present application does not recommend either platinum or palladium as the reduction catalyst. The published version (US 2003/0069125 A1) of the present application further describes disadvantages of platinum and palladium catalysts (see paragraph [0030]).

Even though the Examiner asserts that "the platinum or palladium is considered to meet the reduction catalyst and the ZSM - 5 is considered to meet the second porous structure," this is not part of the teachings found in Li et al. Regardless of the assertion, the reference is silent on the issue of pore size difference between first and second porous structures according to the present invention.

As before, with regard to the application of *In re Casey* 370 USPQ 235 and *In re Otto*, 312 USPQ 458, applicants include the intended use only as "catalytic conversion of exhaust gases." This intended use is also a goal of Li et al., but previous discussion shows that this does not mean that "each and every element," claimed by the present invention, are found either expressly or inherently described in this single reference. For the reasons presented, EP 582 743 (Li et al.) fails to anticipate claims of the present invention under 35 U.S.C. §102.

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Applicants request reconsideration and withdrawal of the rejection of claims 1 - 3, 5, 7 - 11, 13 - 14 and 17 - 21 under 35 U.S.C. §102(b).

ALLOWABLE SUBJECT MATTER:

Applicants gratefully acknowledge the indication of allowable subject matter based on claims 6, 12, and 15 - 16. For reasons presented previously, it is believed that claims 1 - 3 and 5 - 21 are allowable and overcome rejection under 35 U.S.C. §112, second paragraph, set forth in the Office Action. New claims 41 and 42 are included as allowable independent claims since claim 41 includes the limitations of original claims 1 + 4 + 6; and claim 42 includes the limitations of original claims 1 + 4 + 11 + 12.

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CONCLUSION:

A review of the prior art of Feeley et al. and Kharas and Saito et al., that is made of record but not relied upon, reveals that the references fail to teach subject matter claimed by the present invention.

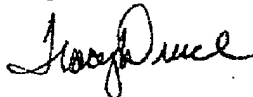
Applicants have made an earnest attempt to respond to all the points included in the Office Action and, in view of the above, submit that the references of Endo et al. and Li et al. fail to satisfy requirements under 35 USC §102 for rejection of claims of the present invention. Amendment of claims to overcome rejection under 35 USC §112 and under 35 USC §102 places the application in condition for allowance. Consequently, request is respectfully made for reconsideration of the application and notification of allowance of claims 1 - 3 and 5 - 21 and 40 - 42 in the next paper from the Office.

The undersigned representative requests any extension of time that may be deemed necessary to further the prosecution of this application.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 14-1437, referencing Order No. 00173.0022.EPUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner should directly contact the undersigned by phone to further the discussion.

Respectfully submitted,



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